

received instruction which, if you call it psychology or knowledge of child-nature, is still part and parcel of her training. She studies the child as a whole, she sees the working of the mind on the body, of the body on the mind. She sees the moral faculties underlying the physical and mental peculiarities in each child; she knows what special influence will be required to counterbalance any undue development of a single characteristic. As she would watch against physical deformity, so even in the infant will she guard against any pronounced tendency likely to injure the symmetrical development of its powers. But, if she be a true kindergarten teacher, she will not deal with any threatened evil by outward force. She will not if she can avoid it in infancy impose an external or forcible restraint upon the child. Instead of ruling by means of a raised hand and angry voice, she will work upon the child's own powers of self-restraint and thus lead him while yet an infant to the secret of all true development, by the discipline which is self-discipline, the control which is self-control, giving the child a consciousness of power, not defiance but self-reliance—not of self-assumption but of obedience to the inner conscience.

The desire to do right is often very feeble in a child, because it is acting on the defensive, its combative faculties having been developed by the outward and vigorous attacks on its little frame. No amount of shaking ever made a naughty child good, but it has made many a good child naughty by rousing the spirit of self-defence. A trained kindergarten nurse will avoid bringing into prominence those words, "good" and "naughty." They are comparative terms, and are more generally the indications of a teacher's temper than of an infant's moral qualities. The child must be trained in obedience, in truthfulness, in neatness, in gentleness, in all virtue. This is positive training, and is not a matter of never-ending "Don'ts." Virtue is many sided, but it is indivisible, and in the act of training a child's moral and physical nature, you train it in each of the separate qualities which are supposed to make up a good child.



The Evening Sky—May 15 to June 15.

BY MRS. L. C. D'A. LIPSCOMB.

THE MOON.

New, May 18th; first quarter, May 26th; full, June 2nd; last quarter, June 9th.

THE PLANETS.

Venus is an evening star, and rises higher every evening. On May 15th it is not far from Aldibaran in Taurus, and pursues its way eastward among the stars until by June 15th it has crossed Gemini and is just below Pollux. But it can be distinguished long before these constellations are visible in the western sky soon after sunset.

Mars.—In 1783 Herschel said, "The analogy between Mars and the Earth is perhaps by far the greatest in the whole solar system," and the saying holds true to-day, so that this planet has a special interest for us. Dusky markings were first seen in 1636, and in that year and subsequent ones Cassini saw them distinctly enough to determine the planet's rotation by them as twenty-four days forty-eight minutes. This was confirmed in 1719, when Maraldi distinguished two spots always in the same position, although variable in size. These were peculiar bright patches round the poles. Herschel found out that they varied according to the season; when it was winter in one hemisphere the corresponding patch was invariably larger, so that to attribute it to snow and frost was inevitable. Herschel also declared the dark markings were permanent, and that their apparent alteration or disappearance arose from their being hidden sometimes by clouds similar to ours. It has now been established without doubt from various observations that we know two facts about the surface of Mars. First, we

recognise the steady fluctuations of the polar spots according to the seasons; and second, the permanence of certain dark grey or greenish patches standing out from a yellow ground. The patches are supposed to be land, and the dusky spots and streaks, oceans and straits; and this idea receives further confirmation as years go on. In fact, different portions have been named in some maps after celebrated astronomers, as Nasmyth Inlet, Leverrier Land, Herschel Continent, De la Rue Ocean, Huggins Bay, &c. Recent researches teach us that Mars' atmosphere is very thin compared to ours. We can inspect Mars with much greater ease than its inhabitants (if there be any such), can make out the contour of our continents, even if they have the same telescopic aid, our clouds being so much denser; those on Mars seem to be ground-mists rather than heavy cumulus.

Judging from the extent of its polar caps, the climate is milder than might be expected when we remember its distance from the Sun, which is about 141 millions of miles. In the summer the south pole is sometimes quite free from snow. In the winter, considering that the Sun radiates less than half as much heat on Mars as on the Earth, we should expect to see the whole hemisphere frostbound, but apparently this is not so, and we do not know by what means the severe climate we naturally look for has been modified so much that beings like ourselves might comfortably live in it.

Several maps of Mars have been made, and exceptional advantages were given for observation in September, 1887, when in opposition (*i.e.*, when the Earth is between the Sun and Mars, or in other words, when Mars and the Sun are in *opposite* parts of the sky, so that Mars is seen on the meridian at midnight). A trigonometrical survey was made, and it was found upon close examination that what was supposed to be continents turned out to be really archipelagoes, the islands being separated from each other by a network of so-called "canals." There is nothing on the Earth to compare with these canals, some of them running in a straight line for 3000 or 4000 miles and keeping a nearly uniform breadth of sixty miles the whole length. The opposition of December, 1881, again afforded splendid opportunities of observing Mars, its atmosphere being more transparent and it being higher in the sky for northern observers. The canals were again seen, and in

addition about twenty of them were in duplicate; that is, a twin canal ran parallel to the old one at a distance varying from twenty to 400 miles. These are inexplicable, but were again distinctly seen in 1886. Astronomers are looking forward with great interest to 1892, when Mars will, at opposition, be at its least distance from us, and are eager for fresh discoveries with the increased power at their disposal. Now that we know the continents to be so interlaced with water, we see a considerable difference between Mars and the Earth. The former cannot possess the variety of level so often found in the latter, although occasional bright points are supposed to represent snow-crested mountains.

It was often supposed that Mars was accompanied by satellites, like most of the other planets, but none were ever seen until 1877, when Professor Asaph Hall glimpsed a minute attendant speck of light on August 11th. As so often happens just when an astronomer finds something particularly interesting to observe, bad weather came on, and he had to subdue his impatience until the 16th, when he found it again, and also picked up the inner one, which is rather bewildering from its rapid movement, as it travels round its whole orbit in seven hours thirty-nine minutes, so that its progress must be pretty evident to the inhabitants of Mars. To a terrestrial visitor it would seem very curious to see a planet rising in the West, setting in the East, and culminating twice or even thrice a day, if he were within latitudes 69° North or South. If he were nearer either of the poles than this, the satellite would be hidden on account of the rotundity of the planet. The outer satellite takes thirty hours eighteen minutes to complete its orbit round its primary.

In the Iliad, Mars' companions in battle are called Deimos and Phobos (Fear and Panic), so these names were chosen, appropriately enough, for these two satellites. They are the smallest moons known, being respectively six and seven miles in diameter.

Mars' diameter is scarcely more than 4000 miles, so that it is only half as large as the Earth. That it shines by the reflected light of the Sun is shown by the fact that it has phases like the Moon.

Mars is at present visible in Scorpio, in the south.

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